

IX.—A Revision of the Genera of the ARANEÆ or Spiders with reference to their Type Species. By F. O. PICKARD
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IT might have been supposed that with Thorell's work on the genera of European Spiders, in which the types have been selected, written in 1869-70, and with Simon's splendid volumes on the genera of the world, with the types also selected, appearing at intervals from 1892 onwards, that any revision would be unnecessary, and would simply mean doing over again work already admirably accomplished.

In the first place, it must be pointed out, however, that neither of these two authors was apparently aware that the types of twenty-nine genera had been definitely selected by Latreille in 1810. They are selected at the end of his work 'Consid. gén. Nat. Ord. Crust., Arachn. et Insectes,' in the "Table des genres avec l'indication de l'espèce qui leur sert de type." It is true that the types are selected under the French form of the generic name, but since both the Latin and French forms are given in the earlier systematic part of the same work, there cannot be the slightest doubt as to what is the signification of the names and what particular group the selected type represents.

Thorell, too, allowed himself sometimes to be influenced by what authors themselves would have wished with regard to their published names and species, forgetting that when a name has once been published it becomes public property and the author has no further rights over it. He, for instance, in the case of *Micromata*, Latreille, says that a certain species, *accentuata*, "got in by mistake" and must therefore be ignored. On those principles there is nothing to prevent any author making the same assertion of any species or any number of them originally referred to any genus. Thorell, moreover, has in some cases been content with deciding that such and such genera are synonyms of others, and has therefore refrained from selecting the *types*. Since, however, genera dropped in haste are apt to be later on restored at leisure, it is very important to know what are the type species which represent them, whether they are eventually to stand or not.

He does not, however, come to any conclusion without giving his reasons very fully, and thus it becomes much easier to revise his work and bring it up to date.

The same remarks apply also to some extent to Simon's work. He, too, set out apparently with some definite principles,

but his courage seems occasionally to have failed him, for he has not always applied those principles consistently throughout. Curiously enough, too, he ignores his own selections of types made in many cases in 'Les Arachnides de France.'

On page 799 of his *Hist. Nat. Ar.* ii. 1895, he admits that Latreille limited the genus *Araneus* (*Aranea*) to three species, and also his right to do so by quoting Article 35 of the International Congress of Zoology in 1889 (Paris) and 1892 (Moscow) to that effect; but he promptly selects as the type of *Araneus* a species which was not included in this limitation, namely *angulatus*, Clerck. So, too, in the case of the genus *Lycosa*, he takes as the type a species, *tarentula*, Rossi, which was not originally included in the genus under this or any other name.

Simon, moreover, very rarely gives reasons for his selections of types; so that one is forced either to accept his decisions as it were *ex cathedra* or to ignore them altogether. But the days of the authority whose *ipse dixit* is final and above question or criticism have passed away; and since the work cannot be altogether ignored, the whole of the ground must be reinvestigated to prove whether his selections are sound or otherwise.

These criticisms are offered in no way with a view of underrating the splendid efforts of both Thorell and Simon to introduce something like order into the chaos of nomenclature, but simply as a justification for this work of revision.

It must be made quite clear that, as with a group of species, so with the name attached to that group and published, no one, not even the original author himself, has a right to make any alteration in it. It cannot matter, for scientific purposes, whether a name be spelt, for instance, *Micromata* or *Micrommata*, any more than it matters to students in the future whether the spider usually known as *Anyphana accentuata* be known as *Micromata accentuata*, as it must be, since it happens to be the type of the genus *Micromata*.

If an arbitrary method be followed, and every method must be arbitrary at some point, at least let it be applied consistently. Any other attempts, involving philosophical considerations as to what this or that author would have preferred, simply open up further possibilities of confusion, no two men agreeing as to how far this sympathy should be extended, leading on to endless disputation over minor details. Whereas if it be agreed to show no sympathy at

all, then the disputation is at least confined to the interpretation of the strict letter of the law of priority.

The *original spelling*, therefore, of each name is given in every case in this revision; for although it is true that *Micromata* may offend the classical eye, just as the associations also gathered round certain names are swept away and feelings wounded by any alteration in the nomenclature, still something must be sacrificed for the sake of uniformity, and it is better to sacrifice feelings, which are transient, than to tamper with printed facts, which will, at any rate, outlive authors, sentiments, and associations.

The object held in view, then, is to ascertain what is the type species of every group which has ever received a name, and briefly to give the reasons why such a species must be regarded as the type.

No attempt is here made to determine whether this or that generic group ought to be maintained or not, but simply to settle what, if a genus is maintained, must be the type species representing that genus, exclusive of any other species.

This attitude naturally involves the following of some definite system, which shall be consistently applied throughout and no deviation from it admitted on any consideration whatever.

The Principles of Elimination.

The system followed in the determination of types where no type has been definitely selected is known as that of "*Elimination*," by which the last species left in, of those originally included in the genus when first published, becomes the type, supposing the group to be broken up into other genera by the author himself or by subsequent authors.

If, however, the author himself or another author has definitely selected a *type* for the genus, either from all those originally included or from the two or more species left in, the species thus selected is regarded as the type, whether it be the oldest species or not. On no account can a species not originally included in the group become the type of the genus, even though added subsequently by the author himself or definitely selected by that author as the type.

Species are often eliminated by "*implication*" in other genera. For instance, supposing three species were originally referred to a certain generic name and an author subsequently founds a genus upon another species not originally included but afterwards found to be *congeneric* with one of the original: this original species is then regarded as removed from

the original generic group to that to which it belongs by implication.

On no account must all the species be removed from the title originally given to them; one at least must be left in, which in that case becomes the type.

Where a generic name has been preoccupied, the loss of the name does not lessen the value of the group selected, so that a type may be selected for that group and another name given to it.

These are the main features of the process, and I here give an instance to show more clearly how it works out in practice.

For instance, the name *Bombastes* is given to a group of three species A, B, and C, which are the only ones originally included under that name by the author of it. The question is, which species must we regard as the type?

There are two processes by which the type can be determined, either (i) by *definite selection* or (ii) by *elimination*.

And both processes may be utilized in a selection. Under the first process (*a*) the author himself may select A, B, or C as the type; or (*b*) another author may select A, B, or C as the type; and the species so selected must be regarded as the type and no other. No author, of course, not even the originator of the genus himself, can definitely select as the type a species already removed either definitely or by implication under another generic name. If he has done so, his selection becomes null and void, because he had no power or right to make such a selection.

Under the second process, where no type has been definitely selected, one or two, but not *all*, of these species may be removed and placed under another generic name by any other author, thus "breaking up" the original genus and "limiting" the generic name to one, or two, species; the last species left in being the type.

If B and C are removed, A is left in and must be regarded as the type; if A and C are removed, B remains as the type; if A and B are removed, C is left as the type. If A be removed alone, then B or C can become the type either by definite selection or by a further removal of one of them. If B or C be removed, then the same remark applies to A, C or A, B respectively. The species left in are sometimes termed the "*residual species*."

It will be evident that the settlement is comparatively easy when any definite selection of the type has been made soon after the founding of the genus; but the matter becomes much more complicated when the genus, perhaps involving

twenty or thirty species originally, has been split up and subdivided again and again by consecutive authors. A further element of difficulty of course appears when the authors breaking up an original genus have not correctly identified the species withdrawn.

Literature.

In preparing this revision of the genera of the Araneæ all the pre-Latreillean literature, from Clerck in 1757 and onwards, has been carefully examined, in case any genera may have been established which might have escaped the researches of Dr. T. Thorell and others.

C. Clerck was the first to apply the Linnean binomial system systematically in Arachnology; and although his work 'Aranei Suecici' was published the year before Linnæus's 10th edition of the 'Systema,' it is generally regarded as valid, since he was well acquainted with Linnæus, attended his lectures, and adopted his system. This author, however, made use of only one generic name, *Araneus*, and all his species are included under this title.

Neither Linnæus, Fabricius, Geoffroy, De Geer, nor Meyer made any alteration in this respect; and it was not until 1802 that Latreille, in his Hist. Nat. des Fourmis, p. 345, quoted two genera, *Mygale* and *Aranea*. The original genus *Araneus*, however, was not broken up by Latreille until 1804, in Nouv. Dict. d'Hist. Nat. xxiv.; and it is with this work that the whole question of generic names and the selection of types must naturally begin.

Walckenaer published his 'Faune Parisienne, Insectes,' tom. ii., Paris, in 1802, but includes all his species under *Aranea*.

This first instalment of revisional notes includes, with the exception of *Araneus*, only the generic names published from 1802-1804. In 1810 Latreille definitely selected types for a great many of his own genera and for some of Walckenaer's; and it will be useful to give a brief notice of the works published by both Latreille and Walckenaer between those dates, which might have any possible weight in the settlement of the question of names and types.

1802. P. A. LATREILLE.—Hist. Nat. des Fourmis: p. 345, G. i. *Mygale*, including *A. avicularia*, *cæmentaria*, and *Sauvagesii*; p. 347, G. ii. *Aranea*, followed by a number of species, but without in any way limiting the genus as he afterwards does in 1804.

1802. C. A. WALCKENAER. — Faune Parisienne, Insectes, tom. ii. (Paris).

The generic name *Aranea* is accepted throughout for all species not referred to *Mygale*, but names (*Tubiformes* &c.) are given to various groups.

1804. P. A. LATREILLE.—Hist. des Insectes, vol. vii.; An. Rev. xii.

The author characterizes the genus *Mygale* and the various families of spiders, which are all referred to under the generic name *Aranea*.

1804. P. A. LATREILLE.—Nouv. Dict. d'Hist. Nat. xxiv.

In this work the genus *Araneus* is first limited to three species, and other genera are founded upon the residue, many of the generic groups coinciding with Walckenaer's divisions in the Faun. Par.

1805. C. A. WALCKENAER.—Tableau des Aranéides.

The author here limits some of Latreille's genera and finds others of his own. The genera are characterized, but there is no definite selection of any type, except indirectly where only a single species is quoted.

1806. C. A. WALCKENAER.—Hist. Nat. des Aranéides.

Contains a description of various species with coloured illustrations, but the genera are not designedly limited nor are any types selected. The generic names are those used in the 'Tableau.'

1806. P. A. LATREILLE. — Genera Crust. et Insectorum, iconibus exemplisque plurimis explicata.

Gnaphosa is made a synonym of *Drassus* (p. 86), but the author does not select any types and the species are merely given as examples without intention of definitely limiting the genera.

1810. P. A. LATREILLE.—Considérations générales sur Nat. Ordre Crust., Arach. et Insectes, p. 423: "Table des genres avec l'indication de l'espèce qui leur sert de type."

In this work Latreille selects types for twenty-nine genera. In his work on European spiders Thorell must have overlooked this selection of types. The genera are characterized under Latinized names, and at the end of the work the types selected under the same names in a French form.

MYGALE, Latreille, 1802, Hist. Nat. des Fourmis, p. 345 (nom. præocc. Cuvier, 1799).

Three species were originally included in this genus—(1) *A. avicularia*, (2) *cementaria*, (3) *Sauvagesii*.

The first was selected as the type of the genus in 1810 by Latreille.

The name *Mygale* had, however, been preoccupied by Cuvier in the table opposite page 496 of his 'Anatomie Comparée,' in the same form *Mygale*, not *Myogale*.

Thorell evidently overlooked the limitation of this genus by Latreille in 1802, for on page 163 of his Europ. Spid. he ascribes the genus to Walckenaer, Faun. Par. 1802.

Type, *Mygale avicularia* (Linn.), 1758.

ATYPUS, Latreille, 1804, Nouv. Dict. Hist. Nat. xxiv. p. 133.

Only one species is included originally, *A. subterranea*, Roemer, Gen. Ins. tab. xxx. fig. 2, which Latreille identified by mistake as belonging to this genus.

Type, *Atypus Sultzeri*, Latreille, 1804.

ERIODON, Latreille, 1804, Nouv. Dict. xxiv. p. 134.

The only species mentioned originally has no name assigned to it:—"Araignée inédite de la Nouvelle-Holl."

In 1806 Latreille, Gen. Crust. Ins. p. 85, quotes *Missulena*, Wlk., as a synonym of *Eriodon*, and gives a single species—"Species i. *occatorius*." In 1810 he definitely selects *Misulena occatoria*, Walck., as the type of the genus.

Type, *Eriodon occatorium* (Walckenaer), 1805.

DYSDERA, Latreille, 1804, Nouv. Dict. p. 134, col. 1, line 11.

Three species are quoted originally under this genus, referred to by Latreille as "Les Claustraliformes" of Walckenaer, who further quotes the species *Aranea punctoria*, Villers.

The three species are:—1. *A. erythryna*, Walck.; 2. *A. Hombergii*, Scop. Ent. Carn. p. 403; 3. *A. punctoria*, Villers.

On page 47 of the 'Tableau' Walckenaer limits *Dysdera* to one species, *D. erythryna*, Walck., which was also definitely selected by Latreille as the type in 1810.

Further, also, *A. punctoria*, Villers, Caroli Linnei Entomologia, t. iv. p. 128, pl. xi. fig. 9, is a *Chiracanthium*, as Simon states in his Ar. Fr. tom. iv. p. 247, and was removed to that genus by implication in 1837 by C. L. Koch. *A. Hombergii*, Scop., was referred to the genus *Harpuctes* by Templeton in 1834.

Type, *Dysdera erythryna* (Walck.), 1802.

SEGESTRIA, Latreille, 1804, Nouv. Dict. xxiv. p. 134, col. 1, line 16.

The spiders which Latreille refers to this genus are those mentioned by Walckenaer, Faun. Par. 1802, p. 222, under "Les Tubiformes."

(1) *Aranea senoculata*, Fabr., (2) *A. perfila*, Walck. (*florentina*, Rossi, Fauna Etrusca, pl. xix. fig. 3).

The same two species are mentioned under *Segestria* by Walck. Tableau, 1805, p. 48, and *A. florentina*, Rossi, was

selected by Latreille in 1810 as the type of the genus (Consid. gén. Nat. Ord. p. 423).

The name *florentina* has priority over *perfidia*.

Type, *Segestria florentina* (Rossi), 1790.

ARGYRONETA, Latreille, 1804, Nouv. Dict. xxiv. p. 134, col. 1, line 22.

A single species only is quoted under this name, included in Walckenaer's "Nayades," Faun. Par. p. 233.

Type, *Argyroneta aquatica* (Clerck), 1757.

GNAPHOSA, Latreille, 1804, Nouv. Dict. xxiv. p. 134, col. 1, line 31.

Four species were originally included, being those comprised in Walckenaer's "Celluliformes," Faun. Par. p. 220, 1802:—(1) *A. nocturna*, Linn.; (2) *A. lucifuga*, Walek., Sch. Icon. pl. 101. fig. 7; (3) *A. lapidosa*, Walek.; (4) *A. fulgens*.

The genus was first split up by Walckenaer himself in 1805, who withdrew *A. nocturna*, Linn., *A. lucifuga*, Walek., and *A. fulgens*, Walek., under *Drassus*, Tableau, p. 45, leaving *A. lapidosa*, Walek. This being the last left in becomes the type. It is not possible under these circumstances to regard *Drassus*, Walek., as a synonym of *Gnaphosa*, Latr., as Simon does (Hist. Nat. Ar. 2, i. p. 383, 1893), nor can the type of the latter be *lucifuga*, as there selected.

Type, *Gnaphosa lapidosa* (Walek.), 1802.

CLUBIONA, Latreille, 1804, Nouv. Dict. xxiv. p. 134, col. 1, line 39.

Seven species were originally included, being those referred by Walckenaer to the "Cameriformes," Faun. Par. p. 217 (1802):—(1) *Aranea atrox*, De Geer; (2) *A. amarantia*; (3) *A. aloma*, Albin, pl. x. fig. 48; (4) *A. erratica*, Albin, pl. xvii. fig. 82, p. 26; (5) *A. epimelas*; (6) *A. holosericea*, De Geer, vii. p. 266, pl. xv. fig. 13; (7) *A. nutrix*.

Walckenaer does not remove any of these species in the 'Tableau,' and the genus was first broken up by C. L. Koch in 1837, who withdrew *A. atrox*, De Geer, as the type of *Amaurobius*, and, in 1839, *A. nutrix*, Walek. = *punctorium*, Villers; and *erratica*, Walek., under *Chiracanthium*, the last by implication.

In 1810 Latreille selected *A. holosericea*, Linn., as the type, a species which he obviously concluded to be identical

with the *holosericea*, De Geer, quoted by Walckenaer, for De Geer gives *holosericea*, Linn., as a synonym of the species figured by himself.

So that Latreille's action is in reality a selection of species (6) as the type, with a correctional reference to the earliest author of the name *holosericea*.

Both Thorell and Simon, however, have come to the conclusion that the species figured by De Geer is not *holosericea*, Linn., but that De Geer's species = *phragmitis*, C. Koch, and Linnæus's = *pallidula*, Clerck.

This conclusion, however, cannot affect Latreille's selection; it merely settles that *phragmitis*, C. Koch, is the type, and not *pallidula*, Clerck, as selected by Simon (Hist. Nat. Ar. ii. 2, p. 85, 1897).

Type, *Clubiona holosericea*, De Geer = *phragmitis*, C. L. Koch.

TEGENARIA, Latreille, 1804, Nouv. Diet. xxiv. p. 134, col. 1, line 49.

Five species were originally included, namely "Les Tapi-formes," Walck. Faun. Par. p. 215 :—

(1) *Aranea domestica*, Fabr. p. 412. 21; Clerck, p. 76, pl. ii. fig. 9; (2) *A. civilis*; (3) *A. agrestis*, Albin; (4) *A. murina*; (5) *A. labyrinthica*, Fabr. p. 417. 34; Sch. Icon. pl. xix. fig. 8; Albin, pl. xvii. fig. 83.

A. labyrinthica was taken out under *Agelena*, Walck. Tableau, p. 51 (1805). *Araneus domesticus*, Clerck, was selected by C. Koch in 1837 in the 'Uebersicht,' p. 13, as the type of his new genus *Philoica*.

Latreille did not in 1810 select any species as the type of *Tegenaria*, but he selected *Aranea domestica*, Fabr. = *domestica*, Clerck, as the type of *Aranea*, in 1810, without effect, however, for he had previously limited the genus *Aranea* to one species—*Araneus diadematus*, Clerck.

In 1837, however, a little further down p. 13 of the 'Uebersicht,' C. Koch selected *A. domesticus*, Linn., as the type of *Tegenaria*.

These are definite selections; and if *A. domesticus*, Linn. = *A. domesticus*, Clerck, then *Philoica* is simply synonymous with *Tegenaria*, and can have no separate species as the type.

But under *domesticus*, Clerck, two species are undoubtedly involved—(1) = *ferruginea*, Panzer, (2) = *Derhami*, Scop. The first is obviously represented in the full figure in Clerck's work on pl. ii. fig. 9. The second is represented by the *palpus of the male* figured on the same plate.

Now Thorell (Recen. Crit. Aran. Suec. Clerck, p. 36) retained the name *domesticus* for the full figure in Clerck's work, and his selection, in spite of what might be considered more convenient (*cf.* Simon, Ar. Fr. ii. p. 67, note), must hold good.

Therefore *domesticus*, Clerck, with the signification attached to it by Thorell, is the type of *Philoica*, C. K., 1837, and = *ferruginea*, Panzer.

A. domesticus, Linn., however, was also selected, a little further down on the same page, as the type of *Tegenaria* by C. Koch himself. Now *domesticus*, Linn., according to Simon (Ar. Fr. ii. p. 73), and also according to Thorell, is the species whose palpus is depicted on pl. ii. fig. 9 in Clerck's work, and is identical with *Derhami*, Scop. 1763, and with *civilis*, Walck. 1802.

Therefore number (2) of the species originally referred to *Tegenaria* is the type of the genus, and its earliest appellation is *Derhami*, Scop. It is true that later on C. Koch himself reversed the signification of the two generic names and referred *domesticus*, Clerck, to *Tegenaria*, and *civilis*, Walck., to *Philoica*. But this, of course, he had no power to do.

Type, *Tegenaria Derhami* (Scopoli), 1763.

SCYTODES, Latreille, 1804, Nouv. Dict. xxiv. p. 134, col. 2, line 19.

Latreille includes under this genus two sections:—A. 2 eyes, "Les Filiformes"; B. 6 eyes, *Aranea thoracica*. Now "Les Filiformes," Walckenaer, Faun. Par. p. 212, contain two species: *A. phalangioides*; Scop. (*A. Pluchii*), Ent. Car. 404, 1120. Whether these two names refer to the same species makes no difference, for they are at any rate both congeneric.

A. phalangioides was selected by Walckenaer as the representative of his genus *Pholcus* in 1805 (Tableau, p. 80).

A. thoracica is therefore the last species left in, and was further selected by Latreille in 1810 as the type of the genus (Consid. gén. Nat. Ord. p. 423).

Type, *Scytodes thoracica*, Latr., 1804.

LINYPHIA, Latreille, 1804, Nouv. Dict. xxiv. p. 134, col. 2, line 50.

Two species only are included under this genus, called by Walckenaer "Les Napiformes," Faun. Par. p. 213:—(1) *A. triangularis*, Clerck, De Geer, t. vii. pl. xiv. figs. 13, 14, 15, 16; Clerck, pl. iii. fig. 2; (2) *A. montana*, Clerck,

De Geer, t. vii. p. 251; Clerck, pl. iii. fig. 1; Lister, t. xix. fig. 19.

Both these species are congeneric, but in 1810 Latreille selected as the type of the genus "Araignée renversée sauvage," De Geer, which is identical with *A. triangularis*, Clerck.

Type, *Linyphia triangularis* (Clerck), 1757.

TETRAGNATHA, Latreille, 1804, Nouv. Dict. xxiv. p. 135, col. 1, line 5.

One species only was included under "Les Spiraliformes" by Walckenaer, Faun. Par. p. 203, namely *Aranea extensa*, Fabr. p. 407. 1.

Type, *Tetragnatha extensa* (Linn.), 1758.

ARANEUS, Clerck, Svenska Spindlar, 1757, p. 22, &c.

This genus includes sixty-seven species, which were first split up by Latreille in 1804, Nouv. Dict. p. 135, col. 1, line 8.

Under *Aranea* Latreille places three species only, thus limiting the genus to (1) *A. clavipes*, Fabr., (2) *A. diademata*, Clerck, (3) *A. spinosa*, Fabr.

Neither the first nor the third species, however, nor any species congeneric with them, was originally included in the genus by Clerck, and therefore *A. diadematus*, Clerck, alone can be the type.

Latreille had no power or right to select *A. domestica*, Fabr., as the type of the genus Araignée, *Aranea*, or *A. diadema*, Linn., the type of *Epeira*, Walck., as he does in his selections of 1810, having already himself, in 1804, limited the genus to one species only, *A. diadematus*, Clerck.

Type, *Araneus diadematus*, Clerck, 1757.

HETEROPODA, Latreille, 1804, Nouv. Dict. xxiv. p. 135, col. 1, line 36.

Under this genus are included "Les Cordiformes" of Walckenaer, Faun. Par. tom. ii. p. 227 (1802), with *Aranea venatoria*, Linn., in addition, and another species bearing no name.

"Les Cordiformes" include twenty species:—*Aranea oblonga*, *argentata*, *rhomboica*, *pigra*, *bilineata*, *aureola*, *cespitem*, *tigrina*, *truncata*, *emarginata*, *rotundata*, *floricola*, *violacea*, *citrea*, *calycina*, *cristata*, *fucata*, *dauci*, *diana*, and *delicatula*.

The genus was first broken up by Walckenaer in the

Tableau, p. 28 *et seq.*, 1805, when he withdrew under *Thomisus* all these species except *emarginata* and *venatoria*, Linn.

Aranea emarginata was, however, withdrawn by Walckenaer subsequently, in Faun. Française, p. 74 (1820), under *Thomisus*, thus leaving *Aranea venatoria*, Linn., as the type of the genus.

Type, *Heteropoda venatoria* (Linn.), 1766.

MISUMENA, Latreille, 1804, Nouv. Dict. xxiv. p. 135, col. 2, line 2.

One species alone is included by Latreille—*Aranea citrea*, De Geer, which is *Araneus vatus*, Clerck, 1757; the latter name having priority.

Type, *Misumena citrea* = *vatia* (Clerck), 1757.

MICROMATA, Latreille, 1804, Nouv. Dict. xxiv. p. 135, col. 2, line 6.

Four species were originally included, namely those under "Les Grottiformes," by Walckenaer, Faun. Par. p. 225:—(1) *A. accentuata*, Walck.; (2) *A. smaragdula*, Fabr.; (3) *A. ornata*, (4) *A. rosea*, Clerck.

Out of these Walckenaer (Tableau, 1805, p. 39) selected *A. smaragdula*, *A. ornata*, and *A. rosea*, and refers them to his new genus *Sparassus*; and later, in the same work p. 41, he refers *A. accentuata* to *Clubiona*.

This Walckenaer, however, had no right to do, and *accentuata* being the last species left in, naturally becomes the type of the genus *Micromata*.

In 1810 Latreille himself selects *A. smaragdula* as the type of the genus, but this he had no power to do. He had to be content with the species Walckenaer left in.

Thorell says in this connection, 'Europ. Spid.' p. 176, that "*Micrommata* includes 'Les Grottiformes,' Walck., and *A. accentuata*, which is placed there by mistake." For Latreille afterwards obviously wished *Micrommata* to apply to the three species referred by Walckenaer to *Sparassus*, since he quotes his own previous generic name as a synonym of Walckenaer's genus.

One might equally well insist that all the three species originally limited by Latreille to *Aranea* were placed there by mistake (as two of them undoubtedly were), for later on Latreille definitely selects *Araneus domesticus*, Fabr., as the type of *Aranea*, a species not included in his own previous limitation of the genus.

If, however, in the original diagnosis of *Micromata*, Latreille had included any character which would have definitely excluded *A. accentuata*, then it might be possible to act on this fact.

But Latreille's original diagnosis of "*Les Grottiformes*," Walck., is "Mâchoires droites, quatrième paire de pattes la plus longue" (Nouv. Dict. p. 135, 1804); characters which apply equally well to the well-known European *A. accentuata*. It is perfectly clear that Latreille and Walckenaer both wished *accentuata* to be dissociated from the other three "grottiformes," and neither of them cared what became of the original name *Micromata*; the author sunk it as a synonym, while Walckenaer swamped it under his new name *Sparassus*.

It is, however, the duty of science to restore *Micromata* as a generic name, and it is impossible to enter into the question of the wishes and sentiments of authors. This would simply end in a labyrinth of inconsistencies and endless disagreement and disputation. For, if we are to consider the wishes of either of these authors in connection with the signification of *Micromata*, why ignore their conjoint wishes in regard to the name itself?

If we take this line, why are we not also to accept the names substituted by Walckenaer in those cases where he considered them more suitable than others previously given to the same genus or species by other authors? Thorell and Simon both select *virescens*, Clerck, as the type.

Type, *Micromata accentuata* (Walck.), 1802.

OXYOPES, Latreille, 1804, Nouv. Dict. xxiv. p. 135, col. 2, line 12.

A single species only included—*Aranea heterophthalma*.

Type, *Oxyopes heterophthalmus*, Latr., 1804.

DOLOMEDES, Latreille, 1804, Nouv. Dict. xxiv. p. 135, col. 2, line 32.

Two species were originally included, namely those mentioned under "*Les Coureuses*" by Walckenaer, Faun. Par. p. 235:—(1) *A. mirabilis*, Clerck, pl. v. fig. 10; (2) *A. marginata*, De Geer, t. vii. p. 281. 24.

The latter is identical with *Araneus fimbriatus* of Clerck, and was selected as the type of the genus under "*Araignée loup bordée*," De Geer, in 1810, by Latreille. *A. mirabilis* was in 1837 referred to *Ocyale*, Sav.; but the type of *Ocyale*

being of a different genus, Simon made the genus *Pisaura* for its reception in 1885.

Type, *Dolomedes fimbriatus* (Clerck), 1757.

LYCOSA, Latreille, 1804, Nouv. Dict. xxiv. p. 135, col. 2, line 38.

To this genus were originally referred all the species named by Walckenaer under "Les Chasseuses," Faun. Par. p. 237:—(1) *Aranea allodroma*, Clerck, pl. v. fig. 2; (2) *A. agretyca*, Walck., Cl. pl. iv. fig. 2; (3) *A. vorax*, Walck., Albin, 4. 17; (4) *A. agilis*, Walck.; (5) *A. saccata*, Linn.; (6) *A. velox*, Walck., Cl. pl. iv. fig. 2; (7) *A. piratica*, Cl. pl. iv. fig. 5; (8) *A. lugubris*, Walck., Albin, pl. iv. fig. 19.

Of these, *allodroma*, *agretyca*, *vorax*, and *velox* were taken out in 1832 and placed under *Tarentula* by Sundevall (Act. Holm. p. 24). The first under *cinerea* (sec. Simon, Ar. Fr. iii. p. 278); the second (which sec. Simon, Ar. Fr. iii. pp. 283, 284, = both *ruricola*, De Geer, and *terricola*, Thor.) under *ruricola*; the sixth, by implication as congeneric, referring to the same figure in Clerck's work as does number (2); the third under the same name or as *trabalis* (this species also sec. Simon, Ar. Fr. iii. p. 259 = *pulverulenta*, Clk., in part, which is congeneric with *trabalis*). No. 7, *piratica*, was taken out by Sundevall (Act. Holm. p. 192, 1832) as the type, being the only species referred to it, of *Pirata*. Nos. 4, 5, and 8 were taken out by C. Koch (Ar. xiv. p. 100) and referred to *Pardosa* in 1848, leaving no species under *Lycosa*. The type therefore must be one of these three; and since none of them were removed under any other genus between this time and 1869-70, when Thorell selected *lugubris*, Wlk., as the type of the genus *Lycosa*, this species remains as the type.

Latreille, in 1810 (Consid. gén. Nat. Ord. Crust., Arach. et Ins. p. 423 &c.), selected "*Ar. tarentula*, Fabr.—L'araignée loup, Geoff.," as the type of his *Lycose* = *Lycosa*, as noted also by Simon (Ar. Fr. iii. p. 233).

Now *Aranea tarentula*, Linn., Fabr., = *Lycosa tarentula*, Latr., is the species which is "subtus læte croceo, fascia transversa nigra," and does not represent any of those species originally included in the genus, and cannot therefore be selected, even by the author himself, as the type of the genus.

Of the three remaining species, *agilis*, Wlk. = *palustris*, Linn. (sec. Simon, 321), and *saccata*, Linn. = *amentata*, Clk., while *lugubris* is the species commonly known by that name, the last being selected by Thorell as the type in 1869-70.

Type, *Lycosa lugubris*, Walck., 1802.

SALTICUS, Latreille, 1804, *Nouv. Dict.* xxiv. p. 135, col. 2, line 51.

Latreille included under this name two groups:—A. “Les Chercheuses,” *Walk. Faun. Par.* p. 248 (1802); and B. “Les Sautteuses,” *id.* p. 243; quoting the following species: (1) *Aranea cinnaberina*, Oliv.—*4-guttata*, Rossi; (2) *Aranea scenica*, Linn.; (3) *Aranea formicaria*, De Geer.

This genus, which included also a number of other species—*A. tardigrada*, *pomatia*, *chalybeia*, *psylla*, *cuprea*, *coronata*, *virgulata*, *pubescens*, *nidicolens*, *fontalis*, *lunulata*, *bicolor*, *calida*, *nigra*, *tripunctata*, *litterata*, and *muscorum*—under “Les Sautteuses,” was first split up by Walckenaer in the following year 1805 in the ‘Tableau,’ pp. 21 & 22. He withdrew first *A. cinnaberina* under *Eresus* (p. 21), and next (p. 22) under *Attus* all the other species named, leaving nothing under *Salticus*, and ignoring it altogether.

No further subdivision or selection in connexion with these two last-named genera took place until 1810, when Latreille definitely selected *A. scenica*, Fabr., as the type of *Salticus*, *Consid. gén. Nat. Ord. Crust., Arach. et Ins.* p. 423.

Thorell has evidently overlooked this selection of types by Latreille in 1810; and most authors have followed Sundevall, who, in 1832, selects under *Salticus*, *typus*, *S. formicarius*, De Geer, a selection which of course cannot stand.

Type, *Salticus scenicus* (Clerck), 1757, = *A. scenica*, Fabr. & Linn.

X.—On the Anatomy of certain Agnathous Pulmonate Mollusks. By WALTER E. COLLINGE, F.Z.S., Lecturer on Zoology and Comparative Anatomy in the University of Birmingham.

[Plates I. & II.]

TOWARDS the end of 1899 Mr. Henry Suter sent me a series of examples of various New Zealand land-mollusks preserved in alcohol, and expressed a wish that I would give some account of their internal anatomy. I take this opportunity of expressing to him my best thanks for his kindness. About the same time Mr. William Moss, of Ashton-under-Lyne, sent me specimens of *Schizoglossa novoseelandica*, Pfr.; to him also my best thanks are here tendered. Finally, my best thanks are due to the Council of the Birmingham Natural *Ann. & Mag. N. Hist.* Ser. 7. Vol. vii. 5